

**Remarks**

In response to the Communication dated 2 July 2002, claims 3-7, 11-14, 20-23, 26-30, 32-33, and 36-39 have been amended to delete "set forth in" and insert -- encoded by nucleotides 314-1036 of -- . Support for this amendment is present throughout the application. This amendment is made

Claim 7 has been amended to correct a typographical error.

The substitute Sequence Listing included herein now contains SEQ ID No:3 and SEQ ID No:4. SEQ ID No:3 is the amino acid sequence encoded by SEQ ID NO:1, and SEQ ID No:4 is the amino acid Sequence encoded by SEQ ID NO:2. The contents of the paper copy and the computer readable form of the substitute Sequence Listing are the same, and the substitute Sequence Listing includes no new matter. Applicants request entry of the substitute Sequence Listing into the specification.

Applicant(s): Pak et al.

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For: CALCIUM CHANNEL REGULATORS

**Summary**

It is respectfully submitted that the pending claims 1-43 are in condition for examination. The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

**CERTIFICATE UNDER 37 C.F.R. 1.10:**

The undersigned hereby certifies that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated below and is addressed to the U.S. Patent and Trademark Office, 2011 South Clark Place Customer Window, Box Sequence Crystal Plaza Two, Lobby, Room 1B03 Arlington, VA 22202

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Respectfully submitted for

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**APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS  
INCLUDING NOTATIONS TO INDICATE CHANGES MADE**

**Serial No.: 290.0037 0101**

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Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted.

**In the Claims**

For convenience, all pending claims are shown below.

1. An isolated nucleic acid molecule, comprising a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells, said nucleotide sequence having substantial similarity to the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.
2. The molecule of claim 1, wherein said nucleotide sequence is comprised of the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.
3. (Amended) The molecule of claim 1, wherein said protein is comprised of an amino acid sequence having at least about 30% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.
4. (Amended) The molecule of claim 1, wherein said protein is comprised of an amino acid sequence having at least about 50% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.
5. (Amended) The molecule of claim 1, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

6. (Amended) The molecule of claim 1, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1 or a sufficiently similar sequence thereto to exhibit the ability to regulate calcium ion entry into cells.

7. (Amended) An isolated nucleic acid molecule, comprising a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells, said nucleotide sequence having the sequence set forth in SEQ ID:1 from [form] nucleotide 314 to nucleotide 1036.

8. An isolated nucleic acid molecule, comprising a nucleotide sequence having at least about 80% identity to a 400 nucleotide long sequence within the sequence set forth in SEQ ID:1 from nucleotide 301 to nucleotide 1036, said nucleotide sequence from nucleotide 301 to nucleotide 1036 encoding a protein functioning in regulating calcium entry into cells.

9. A recombinant nucleic acid molecule, comprising a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells, said nucleotide sequence having substantial similarity to the sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.

10. The molecule of claim 9, wherein said nucleotide sequence is comprised of the sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.

11. (Amended) The molecule of claim 9, wherein said protein is comprised of an amino acid sequence having at least about 30% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

12. (Amended) The molecule of claim 9, wherein said protein is comprised of an amino acid sequence having at least about 50% identity with the amino acid sequence encoded

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by nucleotides 314-1036 of [set forth in] SEQ ID:1.

13. (Amended) The molecule of claim 9, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

14. (Amended) The molecule of claim 9, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1 or a sufficiently similar sequence thereto to exhibit the ability to regulate calcium ion entry into cells.

15. The molecule of claim 9, further comprising a promoter operably linked to a terminal 5' end of said nucleotide sequence.

16. The molecule of claim 15, wherein said promoter is selected from the group consisting of a constitutive promoter, an inducible promoter, and a cell-specific promoter.

17. A recombinant nucleic acid molecule, comprising a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells, said nucleotide sequence having the sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.

18. A host cell, comprising an introduced nucleic acid molecule having a nucleotide sequence of substantial similarity to the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036, said nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells.

19. The host cell of claim 18, wherein said nucleotide sequence is comprised of the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.

20. (Amended) The host cell of claim 18, wherein said protein is comprised of an

Applicant(s): Pak et al.

Serial No.: 09/700,869

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amino acid sequence having at least about 30% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

21. (Amended) The host cell of claim 18, wherein said protein is comprised of an amino acid sequence having at least about 50% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

22. (Amended) The host cell of claim 18, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

23. (Amended) The host cell of claim 18, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1 or a sufficiently similar sequence thereto to exhibit the ability to regulate calcium ion entry into cells.

24. A host cell, comprising an introduced nucleic acid molecule having a nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036, said nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells.

25. A purified InaF protein.

26. (Amended) A purified protein, said protein having an amino acid sequence having at least about 30% identity to the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1, said protein functioning in regulating calcium ion entry into cells.

27. (Amended) The protein of claim 26, wherein said protein has an amino acid sequence encoded by nucleotides 314-1036 of [as set forth in] SEQ ID:1.

28. (Amended) The protein of claim 26, wherein said protein has an amino acid

Applicant(s): Pak et al.

Serial No.: 09/700,869

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sequence having at least about 50% identity to the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

29. (Amended) The protein of claim 26, wherein said protein has an amino acid sequence encoded by nucleotides 314-1036 of [as set forth in] SEQ ID:1 or a sufficiently similar amino acid sequence thereto to exhibit the ability to regulate calcium ion entry into cells.

30. (Amended) A [The] purified protein, said protein having an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1 [, said protein functioning in regulating calcium ion influx into cells].

31. A purified protein, said protein having an amino acid sequence encoded by a nucleic acid molecule having a nucleotide sequence of substantial similarity to the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036, said protein functioning in regulating calcium ion entry into cells.

32. (Amended) A recombinant protein, comprising[:] an amino acid sequence having at least about 30% identity to the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1, said protein functioning in regulating calcium ion entry into cells.

33. (Amended) The protein of claim 32, wherein said protein has an amino acid sequence having at least about 50% identity to the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

34. A method of expressing an InaF protein, said method comprising:

(a) introducing into a host cell a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells, said nucleotide sequence having substantial similarity to the sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide

1036; and

(b) culturing under conditions to achieve expression of said protein.

35. The method of claim 34, wherein said nucleotide sequence is comprised of the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.

36. (Amended) The method of claim 34, wherein said protein is comprised of an amino acid sequence having at least about 30% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

37. (Amended) The method of claim 34, wherein said protein is comprised of an amino acid sequence having at least about 50% identity with the amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

38. (Amended) The method of claim 34, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1.

39. (Amended) The method of claim 34, wherein said protein is comprised of an amino acid sequence encoded by nucleotides 314-1036 of [set forth in] SEQ ID:1 or a sufficiently similar sequence thereto to exhibit the ability to regulate calcium entry into cells.

40. The method of claim 34, wherein said nucleotide sequence is inserted in a vector.

41. The method of claim 40, wherein said vector is a plasmid vector.

42. A method of expressing an InaF protein, said method comprising:

(a) introducing into a host cell a recombinant nucleic acid molecule comprising a nucleotide sequence encoding a protein functioning in regulating calcium ion entry into cells,

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Serial No.: 09/700,869

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said nucleotide sequence having substantial similarity to the sequence set forth in SEQ ID:1

(b) culturing under conditions to achieve expression of said protein.

43. The method of claim 42, wherein said nucleotide sequence is comprised of the nucleotide sequence set forth in SEQ ID:1 from nucleotide 314 to nucleotide 1036.